



US005333247A

## United States Patent [19]

[11] Patent Number: 5,333,247

Gest et al.

[45] Date of Patent: Jul. 26, 1994

## [54] SCROLLING TOOL FOR TEXT AND GRAPHICS IN A DISPLAY SYSTEM

[75] Inventors: Stephen B. Gest; Farrell W. Wymore, both of Austin, Tex.

[73] Assignee: International Business Machines Corporation, Armonk, N.Y.

[21] Appl. No.: 58,823

[22] Filed: May 7, 1993

## Related U.S. Application Data

[63] Continuation of Ser. No. 674,423, Mar. 22, 1991, abandoned, which is a continuation of Ser. No. 204,669, Jun. 10, 1988, abandoned.

[51] Int. Cl.<sup>5</sup> ..... G06F 15/62

[52] U.S. Cl. .... 395/138; 395/155; 345/123

[58] Field of Search ..... 364/521; 395/138, 155; 340/724, 726, 721, 723, 734, 712, 700; 345/123, 124, 125

## [56] References Cited

## U.S. PATENT DOCUMENTS

4,417,239 11/1983 Demke et al. .... 340/709  
 4,437,093 3/1984 Bradley ..... 340/726  
 4,555,772 11/1985 Stephens ..... 364/900  
 4,633,415 12/1986 Vink et al. .... 364/521  
 4,714,918 12/1987 Barker et al. .... 345/123 X  
 4,720,703 1/1988 Schnarel, Jr. et al. .... 340/724  
 4,734,689 3/1988 Kurakake ..... 340/726  
 4,786,897 11/1988 Takanashi et al. .... 340/721  
 4,831,556 5/1989 Oono ..... 364/521

## FOREIGN PATENT DOCUMENTS

0245037 12/1985 Japan ..... 395/138

## OTHER PUBLICATIONS

Foley et al., *Fundamentals of Interactive Computer Graphics*, Addison-Wesley, 1982, pp. 78-87.

Microsoft Windows User's Guide (Version 2.0), 1987, pp. 103-105.

Fischer, "Cognitive View of Reuse and Redesign," *IEEE Software*, vol. 4 No. 4, Jul. 1987, pp. 60-72.

Bernet et al., "The 630 Multitasking Graphics Termi-

nal," *AT&T Technical Journal*, vol. 66 No. 6, Nov.-Dec. 1987, pp. 3-14.*IBM Writing Assistant*. IBM Personal Computer Software Manual, 1984, pp. 2-20.

J. Gettys et al., "Xlib-C Language Interface, X Window System, X Version II, Release 2", 1985-1988, Massachusetts Institute of Technology, 7 pages.

A. Nye, "Xlib Programming Manual for Version II of the X Window System", vol. 1, O'Reilly &amp; Associates, Inc., 1988, 9 pages.

T. Clowes et al., "Moving and Scrolling Screen Windows", IBM Technical Disclosure Bulletin, vol. 29, No. 10, Mar. 1987, pp. 4361-4362.

B. A. Barker et al., "Method to Dynamically Adjust a Scrolling Unit", IBM Technical Disclosure Bulletin, vol. 28, No. 2, Jul. 1985, p. 856.

B. A. Barker et al., "Implicit Scrolling Via Cursor Type", IBM Technical Disclosure Bulletin, vol. 27, No. 12, May 1985, p. 6952.

A. Goldberg, "Smalltalk-80, The Interactive Programming Environment", Addison-Wesley Publishing Company, 1984, ISBN 0-201-11372-4, 61 pages.

Primary Examiner—Mark K. Zimmerman

Attorney, Agent, or Firm—Marilyn D. Smith; Wayne P. Bailey; Robert M. Carwell

## [57] ABSTRACT

A tool for a display system comprises means for superimposing a box on a portion of a buffer of data visible on a display; the box being representative of the size and location of the visible portion with respect to the whole of the buffer. For example, a box of an appropriate size can be superimposed on a portion of a buffer of data displayed in a window at an appropriate location in the window to allow the two-dimensional extent of the visible portion of the buffer with respect to the rest of the buffer of data to be represented in an easily understood manner. The invention finds particular application as part of a scroll tool. By the provision of means for interacting with the scroll box the user is provided with a user-friendly manner of scrolling around a document in a plurality of directions. This scroll tool is much more convenient to use than conventional scroll bars and does not take up unnecessary screen real estate.

8 Claims, 11 Drawing Sheets

